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NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

Jan. - Dec. 1970

United States Department of the Interior Bureau of Sport Fisheries and Wildlife

# RACHEL CARSON NATIONAL WILDLIFE REFUGE MALL

Under the supervision of

# PARKER RIVER NATIONAL WILDLIFE REFUGE

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### NARRATIVE REPORT

### RACHEL CARSON NATIONAL WILDLIFE REFUGE

Jan. - Dec. 1970

### I. General

### A. Weather Conditions.

The following information on weather was obtained from the U. S. Weather Bureau Office in Portland, Maine located nearby to the planned northernmost unit of the Rachel Carson National Wildlife Refuge, the Spurwink area. Overall weather conditions roughly paralleled those of Parker River except for greater severity in extreme periods.

# Precipitation

	Snowfall	This Month	Average	Maximum Temper	Minimum ature
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	6.2 9.8 20.7 3 - - - T	.76 4.31 4.22 4.15 3.15 2.91 .95 5.12 4.49 3.87 2.38 5.14	4.37 3.80 4.34 3.73 3.41 3.18 2.86 2.42 3.52 3.20 4.17 3.85	43 49 49 80 85 90 93 89 88 74 60 59	-8 3 12 23 39 43 50 49 44 28 28 -14
Totals	94.5	41.45	42.85		
Extremes				93	-14

# B. Habitat Conditions.

1. Water: The water in all units of the refuge acquired and optioned to date is tidal. The mean tidal range of the lower units is 8.7 feet and the spring range is 9.9 feet. The highest tide is estimated as 13.5 feet above, and the lowest tide 3.5 feet below mean low water. All nine units are elevated above the level of the tidal streams which have cut rather deep channels through them.

2. Food and Cover: Vegetation is a combination of salt meadow cordgrass (Spartina patens), short salt marsh cordgrasses (Spartina alterniflora) and salt grass (Distichlis spicata) In the highest marshes, salt marsh golden rod (Solidago sempervirens), orache (Atriplex hastata), plantain (Plantago maritime), sea lavender (Limonium nashii), and black grass (Juncus geradi), are abundant. In a number of spots, three square (Scirpus robustus) is common.

Food and cover were assumed to be adequate in all units.

### II. Wildlife

# A. Migratory Birds.

# 1. Waterfowl.

Canada geese, black ducks, green-winged teal and scattered other species utilized the marsh units in varying numbers as season dictated.

As in recent N.R.'s, State of Maine winter waterfowl inventory figures covering 1966-1970 are given below for reference and comparative purposes. This information was obtained from State Biologists who regularly each January have flown the forty-five mile stretch of coastline in which the nine Rachel Carson units are located (their census unit 8). It is probable that the majority of these birds were observed off shore or in rivers rather than on coastal marsh land units of the refuge.

### WINTER INVENTORY DATA RACHEL CARSON AREA

	1966	1967	1968	1969	1970
Canada Geese Black Duck Goldeneye Bufflehead Scoter Eider Old Squaw Miscel.	1530 1539 164 140 5934 138 259	1207 483 45 304 721 45 229	700 400 250 200 3500 200 100	290 1180 210 90 520 1290 80 60	285 2805 355 60 90 1915 -
	9704	3034	5350	3430	5225

#### Remarks:

1. Winter inventory count concentrates mainly on black ducks as the target species.

- 2. Data provided by J. William Peppard, Waterfowl Research Leader, Maine Dept. of Inland Fisheries and Game.
  - III. Refuge Development and Maintenance

# A. Physical Development.

1. Marsh and Water.

Nothing to report.

- 2. Roads and Trails.
  - a. Constructed 1/4 mile access road to dedication site.
  - b. Brushed out 1/2 mile nature trail.
- 3. Fencing and Posting.
  - a. Reconstructed 300' of exterior fence removed from view for the dedication ceremonies.
- Land Acquisition. Records as of Dec. 31, 1970 indicated that 1,363.99 acres had been deeded to the Bureau. 13.25 acres were optioned in 1970. The sum of deeded plus optioned land represents approximately 34% of the total approved acquisition.
  - IV. Resource Management

Not applicable.

V. Field Investigations or Applied Research

Not applicable.

VI. Public Relations

### A. Recreational Use.

As a result of the publicity surrounding the dedication ceremonies and the erection of a redwood routed recognition sign at the entrance road to the dedication site, this area received increased public use during the summer and fall period. The dedication site is the only portion of upland within the total acquisition program that lends itself to any degree of public use. Most visitors came to hike the 3/4 mile nature trail.

# B. Refuge Visitors.

Walter J. Hickel Leslie Glasgow	Secretary of Interior Asst. Secretary for	Dedication	6/27
Hebric Grapson	Parks & Wildlife	11	6/27
John Gottschalk	Director of Bureau	TT	6/27
Richard E. Griffith	Regional Director	ÎĪ	6/27 6/27 6/27
George Bucknam	Commissioner of Maine Dept. of Inland		, .
	Fisheries & Game	31	6/27
Mr. Kyros	Congressman, State		/ - 1
	of Maine	\$1	6/27
Ronald T. Speers,	former Commissioner of		
	Maine Dept. of Sea &		
	Shore Fisheries	8.9	6/27
James Shepard,	Director, Mass. Fish &		
	Game, Boston, Mass.	ŤŤ	6/27

A number of other prominent representatives of public and private conservation organizations attended the dedication ceremonies.

# C. Refuge Participation.

Not applicable.

# D. Hunting.

As a result of an incomplete, piecemeal ownership pattern, no areas of the refuge were posted and closed to hunting. Several waterfowl blinds are still being maintained on the marshes by private individuals.

# E. Violations.

Not applicable.

### F. Safety.

Not applicable.

## VII. Other Items

On June 27 the Rachel Carson Refuge was formally dedicated at a ceremony held at the Upper Wells Unit. This was the culmination of one hectic month of preparations for the event.

An estimated 300 people attended and witnessed the placing of a bronze plaque by Secretary of the Interior Walter Hickel after his

excellent tribute to Miss Carson. Many dignitaries attended the ceremony including Assistant Secretary Glasgow and his wife, Bureau Director John Gottschalk, Regional Director Griffith and his wife, George Bucknam, Commissioner of Maine Department of Inland Fisheries and Game, James Sheppard, Director Massachusetts Division of Fisheries and Game, Maine Congressman Kyros, Congressional candidate Ronald Speers and many other invited guests.

# Credits:

Sections III, IV, V, VI, VII and photos - E. S. Moses Sections I, II, and NR forms - W. R. Forward Typing - C. Welch

# Photographs

Appended.

### N.R. Forms

1C, 1D, 5, 7, 8 and 11 have been omitted since they are not applicable.

grature Date Signature Date

Reviewed by:

Submitted by:

NR's Checked in R. O. by Manan

# MARKATER TO

# WATERFOWL

•					(2)					
			Weeks	of r	eport	ing p	eriod			
Species	1/1-7	:8 - 14	: 15 - 21	: 22 - 28 :	29-2/4	5 - 611	12 - 18	19 - 25	26-3/4	: 5 - 11
ans:										
Whistling		-						-		le!"
Trumpeter								111		
ese:		,					11 11 11			
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
cks:					J					
Mallard	10	10	20	10	10	10	20	20	25	25
Black	100	150	100	200	100	100	100	150	300	500
Gadwall										
Baldpate										- 1
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler		-								
Wood		-					-	7.		
Redhead	-						-	100		
Ring-necked	-									-
Canvasback		-					1			-
Scaup				7			-	-		
Goldeneye	20	20	10	30	110	1(0)	20	50	20	40
Bufflehead	10	20	10	20	20	10	30	10	30	30
	700	20	100	20	20	200	30	200	30	30
Ruddy	-									
0 ther	<del></del>						-			-
			DATA FUR	ARE GERRELE	Seydin JAVADES	1				
Coot:										-

3-1750a Cont. NR-1 (Rev. March 1953) 5RF - 4/68

WATERFOWL (Continuation Sheet)

	•	Wook	c of	v o r o	(2)	c ner	1 0 4		: (3) Estimated	: (	
(1) Species	3/12 -19	19 - 25	26-4/1	2 - 8	9 - 15	16 - 22	23 - 29	<b>30</b>	waterfowl days use	:Broods	:Estimated
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Mistling							-			100	1.5
rumpeter			1 - [-		1 20 10 1	1	-		1/	7,51 1/3	
ese:		-								1	1.
anada	50	75	300	250	100	100	50	50	6,525		
ackling	-	12	-		200						
grant	1 5 1 2							12			
hite-fronted	J. I III		1 2 Hay								
now										1	
Blue											
Other		April 1	-74	700 -11		14 20		7-			
icks:		r rail.		211-1		- 1-2-2-2	1 45 7		100		
allard	25	50	50	20	20	10	10	10	2,425	1110 8	12 2 2 2
Black	500	1,000	500	150	150	100	100	100	30,200		-
adwall	7										
aldpate						:					
intail	25	50	50						875		
W teal		300	500	250	50	50	10	10	8,130		
W teal		10	100	150	200	100	50	30	4,300	1 .	
innamon teal							F#W L	* * 5 cd.			
hoveler											
ood										1 1	
Redhead											
Ring-necked		(4) (§ - 100)			-			. 125		4	
anvasback											
Scaup		-1-2-24						Transport Service			*
oldeneye	50	1.00	100	50	30	20	20	10	4,420		
dfflehead	100	100	150	50	50	50	50	50	5,230		9 1 4 1
Ruddy											
ther		47				- IVI					
		1		DATA FU	RATISHED A	RE PSYLLAN	ED.				
					and the second						
oot:	100			-	*1						

Geese 6,525 300  Ducks 55,580 1,610 Principal nesting areas marking of units.		(5) Total Days Use	(6) Peak Number	: Total		NUMBER OF SUMMARY
Coots = : - :			100			Principal feeding areas Tidal code and and Tale.
		55,580	1,610	*	-	Principal nesting areas marging of units.
Reported by William R. Forward	1 5	•	-	•	-	
						Reported by William R. Forward

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

bee witaille herages hamaar becords 3321-2-, witaille hecords

(1) Species:

In addition to the birds listed on form, other species occurring on the refuge during the reporting period should be added in appropriate spaces. Special attention should be

given to those species of local and national significance.

(2) Weeks of
Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl

Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the

breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

# PETER

# WATERFOWL

			W 1		(2)					
(1)		: 8 - 14		:22 - 28	e port	: 5 - 11	:12 - 18	:19 - 25	26 -7/2	3 - 9
	: 1	: 2	: 3	: 4	: 5	: 6	: 7	: 8	: 9	: 10
wans:						1				
Whistling			-	7		-				
Trumpeter						-				
8e 5e:										- 1
Canada	50	20								
Cackling	X.								9.	
Brant										
White-fronted										
Snow										
Blue										
Other										
acks:										
Mallard	10	10	10	10	10	10	10	10	10	10
Black	100	100	75	50	50	40	40	40	140	10
Gadwall									1000	
Baldpate										- 1
Pintail										
Green-winged teal	10	10	10						1	
Blue-winged teal	30	20	20	10	10	10	10	10	10	10
Cinnamon teal	-					1				
Shoveler		-				-			-	
Wood		-							1	-
Redhead	-	-	+			-	-		-	_
Ring-necked	-	-				1	+	-		
Canvasback		-			-		-			
	-		-			-	95.6	2.45		_
Scaup	10	70				-	+			-
Goldeneye	40	10	5		-		-			
Bufflehead	40	30	30	10						-
Ruddy	-						931	1		
Other	-						-	-	-	-
			DAULA FURN	TERRED ARE	PENDE DUPE				2	
Coot:										

3-1750a Cont. NR-1 (Rev. March 1953) 5RF - 4/68

WATERFOWL (Continuation Sheet)

	•	77			(2)		2 . 1	1 to	: (3)	: (4	.)
(1) Species	7/10-16	17 - 23	24 - 30	31-8/6	7- 13	14 - 20	21 - 27	28 - 31	Estimated waterfowl days use	: Production: Broods:	Estimated Total
wans.				1							
Whistling					10220171			-			
l'rumpeter							- Andrews				
eese:											
Canada						-			490		
Cackling	10-1-4						1				
Brazri	1 1		1 40				1				
White-fronted	I In the second		5								
Snow		- 1									
Blue											
<b>Other</b>											-
ucks:		7.1.	BILLIA EL	7.0%					1/4.	111	
Mallard	20	20	30	30	50	50	60	60	2,760		
Black	60	60	80	8.0	100	100	150	150	9.035		100
Gadwall											
Baldpate											
Pintail								10	40		
GW teal							10	20	360		
BW teal	10	10	10	10	20	20	30	40	1,010	4	
Cinnamon teal								111111111111111111111111111111111111111	1 7 7 7 7		
Shoveler						)					
Wood											
Redhead											
Ring-necked		-						1.5		11 1	
Canvasback											
Scaup						Para I					
Goldeneye						7			175		
Bufflehead				7		4		7 7 7	770		
Ruddy										- 21	
Other											
The state of the s				DATA	TURNI (SIRIND	ADD DON'T	MATTER S				
				DRUM	- OTHER DESIGNATION	ALTE MOIT	THE ES.		~		
oot:				-							3.5
					ver) NR-1	Cont. Fr	om May	7	to August		19 70

Tot	(5) : al Days Use :	(6) : (7) Peak Number : Total Pro	Principal feeding areas salt march creeks and mud flats.
Ducks	15,050	280	Principal nesting areas margins of many margins areas
Coots	•	:	
			Reported by
	10	10 10	
			INSTRUCTIONS
<ol> <li>Specie</li> <li>Weeks</li> </ol>		reporting period show	irds listed on form, other species occurring on the refuge during the uld be added in appropriate spaces. Special attention should be es of local and national significance.
	ing Period:	Estimated average res	fuge populations.
(3) Estima Days U	ted Waterfowl Jse:	Average weekly popula	ations x number of days present for each species.
(4) Produc	rtion:	breeding areas. Broo	young produced based on observations and actual counts on representation of counts should be made on two or more areas aggregating 10% of the stimates having no basis in fact should be omitted.
(5) Total	Days Use:	A summary of data rec	corded under (3).
(6) Peak N	Number:	Maximum number of wat	terfowl present on refuge during any census of reporting period.
(7) Total	Production:	A summary of data red	corded under (4).

5,80

# WATERFOWL

	:		Wash		(2)					
(1)	:9/1 - 7	: 8 9 14	:15 - 21	124 - 28	report :29-10/5	: 6 - 12	:13 - 19	20 - 20	151-17/5	:3-9
	: 1	: 2	: 3	: 4	: 5	: 6	: 7	: 8	: 9	: 10
wans: Whistling				1		I I				
	-			-			-			
Trumpeter	-				-		-		-	
eese:					000		50	-	10	40
					20	50	50	30	10	10
Cackling Brant						<del> </del>				
White-fronted		-			<del></del>			<b>_</b>		
Snow		<del> </del>					<b></b>			
	-	<del> </del>								
Blue			-	-			-		-	
Other	-					-				
ncks: Mallard	60	Ca	-	50	000	000	000	-		1 4
Black	60	150	50	50	20	20	20	20	10	10
Gadwall	150	150	200	350	500	500	150	200	100	100
Baldpate	-									
Pintail	70	- 20		50	20	10	10			
Green-winged teal	10	20	20	50		100			+	500
Blue-winged teal	30	30	50	50	100	30	10	50	50	50
Cinnamon teal	50	1111	150	50	30		1(3)	<del> </del>		
Shoveler	-			+	<del></del>	<del> </del>	<del> </del>	<del> </del>		
Mood		<del> </del>				+	-	<del> </del>	-	
Redhead	-	-			-	-	-	-		
Ring-necked	-		-				-			
Canvasback					-		•			
Scaup	-	-	+		-		-	-		
Goldeneye	-		+	-	-	-	10	30	50	60
Bufflehead		-	+	10	20	30	50	50	50	60
Ruddy	-			-		1 30	70	1-2-		1 30
Other		-	+		-	-	1			-
O MIGI		7 7	Dete	torol ched	(re estim	es.				+
Coot:						7				

3-1750a

Cont. NR-1

(Rev. March 1953)

5RF - 4/68

WATERFOWL (Continuation Sheet)

REFUGE Rachel Carson H. W. MONTHS OF Sept. TO Dec. , 1970 Weeks of reporting period : Estimated: Production: 11/10-16:17 - 23:24 - 30:12/1-7:8 - 14:15 - 21:22 - 28:29 - 31: waterfowl: Broods: Estimated: 11:12:13:14:15:16:17:18: days use: seen: Total (1)Species Swans. Whistling Trumpeter Geese: Canada 1,100 Cackling Brant White-fronted Snow Blue Other Ducks: 10 10 10 10 10 2,590 Mallard 5(0) Black 1(0,0) 10 0 1(0)0) 50 19,600 Gadwall Baldpate 100 Pintail GW teal 50 50 1 (1) 4,690 2,800 BW teal Cinnamon teal Shoveler Wood Redhead Ring-necked Canvasback Scaup 80 Goldeneye 4.270 100 100 100 80 3.990 Bufflehead 100 50 50 50 50 Ruddy Other Data furnished are estimates Coot: NR-1 Cont. From (over)

	(5) Total Days Use	(6) Peak Number	: Total	(7) Production		SUMMARY
Swans	1,190		100	700 700	Principal feeding areas	2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Geese	38,780	690			Principal nesting areas _	
Coots			•	r	Reported by W Forum	ard
						0
(2) We	ecies:	reporting given to t	period hose sp	should be ad pecies of loc	ded in appropriate spaces. Sal and national significance	
(3) Es	porting Period: timated Waterfowl ys Use:	4-11		e refuge popu	lations. number of days present for ea	ach species.
(4) Pr	oduction:	breeding a	reas.	Brood counts		and actual counts on representative re areas aggregating 10% of the ld be omitted.
(5) To	tal Days Use:	A summary	of data	recorded un	der (3).	
(6) Pe	ak Number:	Maximum nu	mber of	waterfowl p	resent on refuge during any	census of reporting period.
(7) To	tal Production:	A summary	of data	recorded un	der (4).	To No

3-1751 Form NR-1A (Aug. 1952)

# MIGRATORY BIRDS

(Other than Waterfowl)

Rachel Carson N. W. Apr. Months of Refuge \_ (5) (6) (1) (2) (3) (4) Peak Last Seen Total Species First Seen Concentration Production Inclu-Total # sive Number Total Estimated Colonies Young Common Name Number Date Number Dates Number Date Nests Use Water and Marsh Birds: 4/28 4/30 1 2 4/30 4/30 90 150 4/28 Green Heron 1 1 II. Shorebirds, Gulls and Greater Tellowlegs 4/30 4/30 4/1 4/30 4/30 4/30 4/30 4/28 5 150 300 2,400 6,000 2 5 5 121 Lesser Yellowlegs Great Black-backed Gull 10 Herring Gull 4/10 10 50 DATA FURGISHED AND ESTIMATES. 1970 April Jan. (over) 5RF-8/69 NR-1A From

III. Doves and Pigeons: Mourning dove White-winged dove  IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow  1 3/28 5 4/25 2 4/30  150  14/30  150  150  150  150  150  150  150  1	(1)	(2	2)		(3)	(1	+)	(5	)	(6)
Golden eagle Duck hawk Horned owl Magpie Raven	Mourning dove	1	3/28	5	4/25	2	4/30			150
	Golden eagle Duck hawk Horned owl Magpie Raven	CLEVE CO.		1.5		2				190

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

# Explanation of column headings:

(1) Species: Use correct names as found in the A.O.U. Checklist.

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

5) Production: Estimated number of young produced based on observations and actual counts.

Total: Estimated species days use (average population X no. days present) of refuge <u>during the</u> reporting period.

# ECCECCO.

# MIGRATORY BIRDS (Other than Waterfowl)

(1) Species	( First	2) Seen		(3) eak cration	(4 Last	Topic os	Pr	(5)		(6) Total
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimate Use
I. Water and Marsh Birds:	1 2	5/1 5/1	5 10	8/20 8/28	2	8/31 8/31				1,200
II. Shorebirds, Gulls and Terns:	2 10 20 5	5/25 5/25 6/1 5/1	35 100 30 150	8/31 8/33 8/31 8/31	5 20 20 20	8/n 8/n 8/n 8/n				3,000 ,500 6,000 6,000 24,000
Microsophia Company		2 7		-						Figer

	(1)	(2	)	(3	3)	(	4)		(5)	(6)
III.	<u>Doves and Pigeons:</u> Mourning dove White-winged dove	1	5/1	25	8/31	2		•	-	1,800
*										A. 3.
IV.	Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie	52	12.00 20.00			70 70 10				5 000 040 200 200
	Raven Crow	5	5/1	20	6/1	30	8/32			6,000

### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

# Explanation of column headings:

Total:

(1) Species: Use correct names as found in the A.O.U. Checklist.

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

Estimated species days use (average population X no. days present) of refuge <u>during the</u> reporting period.

3-1751 Form NR-1A (Aug. 1952)

Data Furnished are estimates.

# \_\_\_ MIGRATORY BIRDS (Other than Waterfowl)

Rachel Carson N. W. to Dec. 19\_70\_ Months of \_Sept. (1) (4) (5) (6)(2) (3)Peak Species Concentration Last Seen Production Total First Seen Inclusive Number Total # Total Estimated Use Common Name Number Date Number Dates Number Date Colonies Nests Young Water and Marsh Birds 9/15 9/10 9/1 9/1 10/10 12/1 Common Loon 2 10 300 51 600 Double-crested Cormorant 2 30 10/20 11/1 Great Blue Heron 5 9/30 10/15 2 300 1 10 9/15 2 9/20 400 Green Heron 9/20 9/30 Black-crowned Hight Heron 10 1 600 II. Shorebirds, Gulls and Terns: 9/1 9/10 9/1 10/10 9/15 9/1 9/30 9/25 9/10 150 1,500 Killdeer 2 5 Black-bellied Plover 9/20 10 50 30 50 30 9/20 Lesser Yellowlegs 52 10 2,250 11/15 20 3,000 Damlin 10 Great Black-backed Gull 11/30 20 12/15 3,600 12/15 9/20 6,000 20 12/1 Herring Gull 100 10 15 9/15 1 Common Tern

(over)

NR-1A

From

Sept.

to Dec. 1970

5RF-8/69

(1)	(	2)		(3)		(4)		(5)	(6)
III. <u>Doves and Pigeons</u> Mourning dove  White-winged dove	5	9/1	15	9/10	5	9/30	2 A 18	- 12	600
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow		9/1	30	11/1	TO T	12/15			1,500 1,500 1,500

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

# Explanation of column headings:

and thinks of the application

(1) Species: Use correct names as found in the A.O.U. Checklist.

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

5) Production: Estimated number of young produced based on observations and actual counts.

Total: Estimated species days use (average population X no. days present) of refuge <u>during the</u> reporting period.

3-1750b Form NR-1B (Rev. Nov. 1957) 5RF-2/70

## UNITED STATES

# DEPARTMENT OF THE INTERIOR

# FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

# WATERFOWL UTILIZATION OF REFUGE HABITAT

Reported by W	. R. Hornigard	Title	L'ENLINE CONT.	19 (See 19 )	io te lot
(1) Area or Unit	(2) Habitat	ue Sery, ta	(3)	(4) Breeding	(5)
Designation	Type Acreag	e	Use-days	Population	Production
a Hilms	Crops -	Ducks	69,895	L. Carrie	100
	Upland 55	Geese	7,015	ing Menda	-
	Marsh 1172	Swans	and Lawrence was	En remarks on	-
	Water 142	Coots	mil ad this image	time dian	
	Total 1369	Total	76,910	15 mms.	100
	Crops	Ducks			
	Upland	Geese			
	Marsh	Swans	Talana a delica	I family a service (Co. 1)	
	Water	Coots	forder salesmin		
	Total	Total	d sh hudalawa	DOWNER, SING	
	Crops	Ducks			
	Upland	Geese	han sport de	en To Joan	
	Marsh	Swans	are wastast ( tax	9. eve 1 8.6.4.79	
	Water	Coots	and burnet which	Albertan	Ke a
	Total	Total			
	Crops	Ducks			
	Upland	Geese			
	Marsh	Swans			
	Water	Coots			
	Total	Total			
e ya	10001	_ 10001			
	Crops	Ducks	The state of		
	Upland	Geese		g0 <u>2000-1-2</u>	
	Marsh	Swans		Dalitaa baa	
	Water	Coots		W 0110000	
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-135	10081				
	Crops	Ducks	DELT LENGTH UT	JOHN FURTHER	
	Upland	Geese			
	Marsh	Swans			
	Water	Coots			
	Total	Total	- ed movied or	and the second	
	TOVAL	_ TOURT			
	Crong	Ducks			
	Crops			Amirine No	and the state of the state of
	Upland	Geese			
	Marsh	Swans			
	Water	Coots		Fatawi Pall	Chic parallel services
	Total	Total			

(over)

ARE

DATA TABLET PROFESSION PROFITE / LANGES

### INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted

tions.

to report changes in unit boundaries or their descrip-

- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these esti-
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

mates should equal the area of the entire unit.

- (4) Breeding
  Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

# UPLAND GAME BIRDS

:	Refuge	മില			NOTE SHOW	Mont	hs of	Je	'70 a	to19	70
(1) Species	(2) Density		(3 You Prod		(4) Sex Ratio	Re	(5) emoval	S	(6) Total	(7) Remarks	(1)
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Re- stocking	For Research	Esti- mated number using Refuge	Pertinent infor specifically r	equested.
Ruffed Grouse	55 Acres Upland Brush	27.5	eligie eleg ele eleg ele elegen	as to the design of the design	50:50	er i era sier oo	enti dia pulete	ores Green Suri Suri Suri	or crem Lulosatic swamm, up		
	transmeren etlik Beraf pi bitmutt Liouvez yn 1914 i	N si	n ácilá laz est e Együk la ak	By Cole 13 Story 14 Tel 15 Stery 15 Stery	kari type 1 prebible 1 represen 10.5 ebould	mati medv matr	unde Dieu Les di Lesco	ed el La de no en nolon	mess oral No. 7 show observacion size of so		
			L v (torri	1 () 1 () 1 ()	produced, t habitat.	grave i milbor	TO T		Retimatel in represe	YOURG PRODUCED:	
	beicion inse	etness	adų, į vi	ors of the	113 10 1	Least Tro A. Chall	eal. eve 1	mu d ! sal	This ector Other spec	SEX RATIO:	(4)
	.boltag mildet s	elt punic	oh bew	100 100	ach categ	ni i	nod sure	InJo	Indicate t	REMOVALS:	
Michael ga		Hoger 1	is ani	ni mol		en u	edno/it	Letol Letol	Matinated resident b	TOTAL:	(9)
	Agred in survey.	Mari 2897	bree ne	idain-po ga ten	termina p formation			bords g rec	Indicate a include of	REMARKS:	(7)
				. 1980 je	e Biuoda	VOTAV	do be	laga s	able to th	ally coluuns applic	10 #

Data furnished are estimates.

Jan to april 1970 NR-2 Upland Game Birds. 5RF-1/69

Form NR-2 - UPLAND GAME BIRDS.\*

(1) SPECIES: Use Correct common name.

(2) DENSITY:

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be emitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: Spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

# UPLAND GAME BIRDS

(1) Species	(2) Density		You Prod		(4) Sex Ratio	Re	(5) emoval	.s	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Resstocking	For Research	Esti- mated number using Refuge	Pertinent information no specifically requested. List introductions here.
Ruffed Grouse	55 ecres Upland brush	13.9	-		50:50				lş.	

Data Furnished are estimates.

May to august 1900

NR-2 Upland Game Birds. 5RF-1/69

### UPLAND GAME BIRDS

Months of Refuge Rachel Carson H. H. (3) (4) (1)(2) Young Sex (5) (6) (7) Removals Species Density Produced Total Remarks Ratio Esti-Estimated Total For Re-stocking Acres per Number proods opserved mated Hunting Cover types, Pertinent information not number total acreage using specifically requested. percentage Refuge List introductions here. Common Name of habitat 27.5 50:50 55 scres Upland Ruffed Grouse Brush \* Only columns applicable to the period specie

Data furnished are estimates.

Sept + 10 Dec. 1970

NR-2 Upland Game Birds. 5RF-1/69

19 70

to Dec.

Form NR-2 - UPLAND GAME BIRDS.\*

(1) SPECIES: Use Correct common name.

(2) DENSITY:

Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: Spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

ala l'a labe oro ret mater.

- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

<sup>\*</sup> Only columns applicable to the period covered should be used.

Refuge Rechal Cause N. H. Calendar Year 1970

(1) Species	(2) Density	(3) Young Produced	100	(4) move	.ls	Lo	(5) osses	Si ama	(6) Intro- ductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, Total Acres Habitat	Number	Hunting	Restocking	Research	Predation	Disease	Winter Loss	Number and Source	Period of Peak Use	As of Dec.	(8)
White-tailed	590 acres - Brush and tidal marsh edges	el losal ora • adi	eus eus s.	ymbe res Ares emar	-		io o biar si <del>b</del> l tive	Lio Lio Lio Lio Lio	wirio, etc. soused mare its on bepres should be 1	6 1 8 12 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6	50-50
	1000	my bebar	to'ag	STR	ar I	21	o <del>l</del> edia	Let	Betimeted Sc	GEORGI	M DWOY	
	during the year.	оложен ух	teer	es d	569	TĒ 1	sijo s	7 / 4	Indiante to		RIMOVALS	
n haea	ndjeste tetal los	Inple est	Lev		enno Bay	- 1	- 1		Ou the bacis	a.	: ageao.r	
	union stock was escured.	mesî jena	39 X	) sg	olor	bea	TOE	mina	Indicate the	: anort	INTRODUC	(9)
	on the verupe at period		186 60 2	io n	atic atic	e pu	g bi	dan)	Give the est greatest abu		TOTAL RE	(1)
.ort bank	of each species as levere	fermics jäi	igs Svoa	esta er d	m lo roig	931			Indicate the field observ	: (	SHX RATE	(8)

Remarks: DATE FURTISHED ARE ESTEDUES.

# INSTRUCTIONS TO LONG TO THE PROPERTY OF

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- Density: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE
  POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

DITARETER BAA GRIBLICHN NOW

3-1754 Form NR-4 (June 1945)

Refuge Year ending April 30, 1970

(1) Species	(2) Density	e alo	ersell.	Re	mova	Ls	Jaka	ino eell	Dispo	(4) sition	of F	urs	(2)	(5)
		tent use hen, use			men mi "	ρĐ	e be	Share	Trapp	ing	nge ped	ted		4
Common Name	Cover Types and Total Acres of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	Restocking	For Research	Permit Number	Trappers Share	Refuge Share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula tion
रिकार है	1,314 acres Tidal marsh	65	A E Egyo	ed by actor	e el	•	•	TION IS	-	•	-	-	-	20
tink Otter Accoon	590 acres Brush &	164 657	yan) na tu	# 00 # 00 d #0.			le n	tim are the des	-	•	-			8 2
Striped Skunk led Fox	Tidal much edges	59 49 <b>295</b>		ere alend traebt				Lend ha Wildied mitted	-	•	-			10
Rodents	590 acres Brush & Tidal Marsh edges	-	-	-BH1			. be	sigmse ind&pat	-	-	-	-	-	•
	cher removes three Ap the relacion by Secular Pa falling under hyading in	r cach dhen ci lls not	abene Frans	edine Ling Ling	a Jás kul-ni na wn	ron Light faire	ada a Bay B LIA	Indicus previou Hunter	-			Man 1	(E)	
erunia spulled () ocionel er comput Summerat in erusen note eru sell	incher, reporte de chara, be sieb t, includend for mass eret es destraved to oraved to a stilland of	limog Depote Pe sil Brail Blibag	edd d e nd 1 er 10 eus d	His of Pe ober luion	far Del 1 nu comi	inggi mn i dott bea	ett-a wij e Ji sanb Sa od	on start canthal careant cass or	:FUR	go Hoj	MTZO	- 810	(4)	

REMARKS: Data furnished are estimates.

#### INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

# MONTHLY RECREATIONAL USE REPORT

Refuge name

Refuge No. W.

State

Code Dis	ngressio trict C				eport Y	r. Mo. (8-11)	
(Card Columns)	(12-13	(14-18)	(19-25)		(12-13	3) (14-18)	(19-25)
ACTIVITY	Code		THE MONT	ACTIVITY	Code		THE MONTH
MOTIVITI		Total Number	Total Hours			Total Number	Total Hours
Hunting: Big Game	01			On-Site Programs	22		
Upland Game	02			*Miscellaneous Wildlife	23		
Waterfowl	03						
Other Migratory	04			Swimming	24		
Other	05			Boating	25		
Bow	06		-	Water Skiing	26		
Fishing: Salt Water	07	500	2,000	Camping	27		
Warm Water	08			Group Camping	28		*
Cold Water	09			Picnicking	29		
Environmental Education	10	300	600	Horseback Riding	30		
Wildlife Photography	11	375	750	Bicycling	31		
Whatife Observation	12	9,800	14,400	Winter Sports	32		
Conducted Programs	13			Fruit, Nut and Vegetable Collecting	33	1	(3)
Field Trials	14			*Miscellaneous Non-Wildlife	34		
Wildlife Trails	15	620	470	Peak Load Day	35	600	
Wildlife Tours/Routes	16	20,100	20,100	Actual Visits	36	28,100	
Visitor Contact Stations	17						
Camping (wildlife related)	18			Fee Area Use	37		
Picnicking (wildlife related)	19	1,200	600	Number of Fee Areas	38	(14-18	3)
Wildlife Interpretive Center	20			Fee Collections	39	\$	
Off-Site Programs	21			Collection Costs	40	\$	

Form 3-123 (Revised July 1969) \*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

View south of the Wells Division of the Rachel Carson National Wildlife Refuge toward the surf of the Atlantic Ocean. The dedication site of the Rachel Carson Refuge is in the focal center of the picture, with Route 9 in the foreground, the Little River on the left, and the Merriland River on the right. A road was constructed from Route 9 to the site, the public was bussed into the area from a parking area .7 miles west on Route 9. Secretary Hickel's limousine and party was driven to the site.





Above: Preparations for the Dedication ceremonies at Rachel Carson necessitated hand trimming of two acres of woody vegetation (photo taken after head high growth had been removed) to remove "ankle stabbers" below the duff. A one-mile nature trail was also prepared leading from the dedication site.

Below: The speakers platform nears completion.





Secretary Hickel presented the main dedicatory address (see attached copy) to the audience of over 300. At the conclusion of his address he placed the bronze plaque. Other speakers included Assistant Secretary Glasgow; Director John Gottschalk; Congressman Kyros; Warren Delano, Maine Nature Conservancy; and George Bucknam, Commissioner of Main Department of Inland Fisheries and Game. Regional Director Griffith was master of ceremonies.





We removed trees to permit viewing of the salt marsh and ocean beyond as you stand in front of the plaque.

Below: At the conclusion of the ceremonies Refuge Manager Moses took Secretary Hickel on a walking tour of the site.





At the rear of the dedication site, opposite the speakers platform, Secretary Hickel was introduced to Ray Callard who was previously a work leader with the Iroquois Job Corps Center and is now in a similar capacity as sign shop instructor at the Iroquois Narcotics Addition Control Center now occupying the Job Corps site. Ray and his family traveled out from Iroquois to attend the ceremony. The redwood routed sign is a fine example of the high quality work that Ray turns out. The Secretary was quite taken up with it for obvious reasons.





Secretary Hickel seemed to thoroughly enjoy mingling and talking with the people.

Below: Flanked by Regional Director Griffith, Refuge Manager Moses, Warren Delano, and Director Gottschalk, the Secretary converses with a group of youths. The lady in black, who we later learned was the Republican chairwoman for that area, advised Secretary Hickel "to keep listening to our nation's youth because in them lies the salvation of our nation's environment".



## MONTHLY RECREATIONAL USE REPORT

Refuge nam	e		7	
Rachel	Carson	N.	W.	
State				
Mair	ne			

	Congression			Code (5-7)	Period [	r. Mo. (8-11)	
(Card Columns)	• (12-13	(14-18)	(19-25)	(Card Columns)	• (12-13	3) (14-18)	(19-25)
ACTIVITY	Code		Total Hours	ACTIVITY	Code		THE MONTH  Total  Hours
Hunting: Big Game	01			On-Site Programs	22		
Upland Game	02			*Miscellaneous Wildlife	23		
Waterfowl	03						
Other Migratory	04		1.	Swimming	24		
Other	05			Boating	25		
Bow	06			Water Skiing	26		
Fishing: Salt Water	07	500	2,000	Camping	27		
Warm Water	08			Group Camping	28		
Cold Water	09			Picnicking	29		
Environmental Education	10	300	. 600	Horseback Riding	30		
Wildlife Photography	11	375	750	Bicycling	31		*
Wildlife Observation	12	9,800	14,400	Winter Sports	32	8	
Conducted Programs	13			Fruit, Nut and Vegetable Collecting	33		
Field Trials	14	1 8		*Miscellaneous Non-Wildlife	34		
Wildlife Trails	15	620	470	Peak Load Day	35	600	
Wildlife Tours/Routes	16	20,100	20,100	Actual Visits	36	28,100	
Visitor Contact Stations	17						
Camping (wildlife related)	18			Fee Area Use	37		
Picnicking (wildlife related)	19	1,200	600	Number of Fee Areas	38	(14-1	8)
Wildlife Interpretive Center	20			Fee Collections	39	\$	
Off-Site Programs	21		и	Collection Costs	40	\$	

Form 3-123 (Revised July 1969) \*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

3-1754 Form NR-4 (June 1945)

Year ending April 30, 1970 Refuge Rachel Carson N. W.

(1) Species	(2) Density	Removals					(4) Disposition of Furs						(5)	
	figure 1	of the	muro ma	nl s	man vgd	ρū		Share	Trapp	Trapping		ted		
Common Name	Cover Types and Total Acres of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	Restocking	For Research	Permit Number	Trappers Share	Refuge Share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula tion
uskrat	1,314 acres Tidal marsh	65	ra s ravo	ga Le	DEIS DEIS	res	1 03 12 10	redmin . Tedmin	-	-	-	-	-	20
ink delaum tter em dela m	& water	164 657	90 9050 81_70	d so.	v.L	a firma extra extra	to a limital	the are	-	-	-	-	-	8 2
accoon triped Skunk	590 acres Brush & Tidal marsh edges	59 49	102 g 1 102 g 1	erin nimel	ma s gr_f i i_t is		enthy idd e	lend ha Vildlif	-	-	-	-	-	10 12
ed Fox mall Rodents	590 acres Brush &	295	etos e Esa	et gan mert ka	igus Heye Rema	ea h 8 .	sho <u>u</u> u areas	mitted sample todiost	-	-	-	-	- ,	2
	Tidal Marsh edges	done y	el ingi	ngber	n b	tot	enit s	Indicat	-	-	Bayav	MEDI	(E)	-
	the retige by Service Pr Falling under headings li	do nesta	gwoms	n ya	B WO	r, s e sh	say a	Previou Muster.	4					
	number, transer's share, to marke , including fure each species destroyed be	timing hipped: lts of	t the Lts : of pa	lis of pe	fur ber 1 nu	pped num Tota	e-tre e the el.	On shar Indicat persons	: AUT	ON OF	OSTE	DIS	(4)	4
	oneted to institutions or d.	i mari eBive iq	bris Lucus	tion e co	cond: in th	ged	dams be-sl	ness or				*		

NR-4 Small Mammals. 5 RF-1/69

### INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES:

Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY:

Applies particularly to those species considered in removal programs.

Detailed data may be omitted for species occurring in limited numbers.

Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture.

Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS:

Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.

(4) DISPOSITION OF FUR:

On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION:

Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1750a Cont. NR-1 (Rev. March 1953) 5RF - 4/68

WATERFOWL (Continuation Sheet)

REFUGE Rachel	Carson N.	W •				MONTHS	OF Sept	, .	TO Dec.		1970
*					(2)				• (3)	: (4)	
	•	Week	s of	reno	(~) rt1nc	ner	1 0 d		• (J) • Fotimated	· Product	ion
(1)	•11/10-16	17 - 23	. 3/1 = 30 .	12/1-7	.8 - 7/1	15 21	* 22 28	rc 00°	Estimated waterfowl	· Broods · E	timeted.
Species	• 11/	12	. 12	1)	2 75	16	. 77	- 53 - 2T	· dage use	· COOK ·	Total
wans.	i i	46-	i i	L.T	i i	1.0		Ť - 10	, days dee	. seen .	T. D. JOLL
Whistling Whist					i					-	
Trumpeter											
eese:								<b> </b>	7		
Canada	1								1,190		
Cackling									<u> </u>		
Brairt											
White-fronted											
Snow											
Blue											
Other			4								
ucks:		- 1		-					/		
Mallard	10	10	10	10	10				2,590		
Black	TOO	100	100	50	50				19,600/		7
Gadwall										-	
Baldpate											
Pintail									980 /		
GW teal	50	50	10						4,690/		
BW teal									2,800 /		
Cinnamon teal							-				
Shoveler			. ~					**			
Wood											
Redhead											
Ring-necked											
Canvasback	- 0										
Scaup											
Goldeneye	80	100	100	100	80		-		4.270	2.0	
Bufflehead	1.00	50	50	50	50				-3,850	3,990	
Ruddy											
Other										1	
		Data	furnished	are est	mates		1.1				
oot:											
				100	ver) NR-1	Cont. Fr	om_		to	1.9	

	(5) : Total Days Use :	(6) Peak Number	Total	(7) Production	SUMMARY	
Swans	100	10	54.	30	Principal feeding areas	
Gese	1,190	50	100 "	150	0 3,2,5	
Ducks	38,780	690	:	_	Principal nesting areas	
Coots			:			
					Reported by W. Found	
	H was				, 0	
			4	INSTR	UCTIONS	
	ecies:	reporting ;	period	should be adde	d on form, other species occurring on the refuge during the ed in appropriate spaces. Special attention should be and national significance.	1e
Re	porting Period:	<b>Estimated</b>	average	refuge popula	ations.	
	timated Waterfowl ys Use:	Average we	ekly po	pulations x n	umber of days present for each species.	
(4) Pr	oduction:	breeding a	reas.	Brood counts	uced based on observations and actual counts on represents should be made on two or more areas aggregating 10% of the aving no basis in fact should be omitted.	
(5) To	tal Days Use:	A summary	of data	recorded und	er (3).	
(6) Pe	ak Number:	Maximum nu	mber of	waterfowl pro	esent on refuge during any census of reporting period.	
(7) To	tal Production:	A summary	of data	recorded unde	er (4).	.0

# WATERFOWL

	:				(2)					
	9/1 - 7		Weeks	of r	eport	ing p	eriod			
(1)	9/1 - 7 :	8 € 14	: 15 - 21	22 - 28	: 29-10/5	: 6 - 12	: 13 - 19	: 20 - 26	: 27-11/2	: 3 - 9
	: 1 :	2	: 3	: 4	: 5	6.	: 7	: 8	: 9	: 10
wans: Whistling				1		D.				1
				-			-		<del> </del>	
Trumpeter	-		-	-						-
eese: Canada	2								1	
					20	50	50	30	10	10
Cackling	-									
Brant							ļ			
White-fronted Snow				-						-
			-	-	-			-	-	
Blue				<del> </del>	-		-	-	-	
Other	-			-				-	<del> </del>	-
ocks: Mallard	(0	(0					1 -			1 1
Black	60	60	50	50	20 -	20-	20-	20-	10	1-20
Gadwall	150	150	200	350	500	500	150	200	100	100
Baldpate	-			<del> </del>				-	-	-
Pintail	7.0	00	0.0					-		-
Green-winged teal	10	20	20	50	20	10	10		-	
	30	30	50	50	100	700	50	50	50	- 50
Blue-winged teal Cinnamon teal	50	100	150	50	30	10	10	-	-	2
Shoveler	-							<del> </del>		
Mood			-					-	-	
Redhead	-								-	-
Ring-necked	-							-	-	-
Canvasback								-		
Scaup							-		-	-
Goldeneye					-		7.0	20	50	- 60
Bufflehead	-			10	20	30	10	30	50	
Ruddy				10	20	30 .	50	50	50	60
Other					-	-	-			
O MIGI.	-		Date	2000 1 200 2				-	-	-
			Data	umished	ere estima	es.				
				1	1			1		
Coot:			1							

Tipenser	To pure ter		-	A	and a second	
Datha	10000	4 47 4	20	0-00		0.000

(1)	(2	2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:  Mourning dove White-winged dove	5	9/1	15	9/10	5	9/30		600
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie	H. G. J. S. 18							1,00 11,000 11,200 1,000 1,000 1,000
Raven Crow	20	9/1	30	11/1	5	12/15		4,500

#### INSTRUCTIONS

See Wildlife Refuges Manual Section 3321-24, "Wildlife Records".

If more space is needed for listing species in Group I, you can X out heading for Group II and continue listing. Retype heading of Group II below, or list Group II on a second page. Here, too, if the list is long, you can X out both headings and retype heading for Group II at top of form. This can eliminate the necessity for a third page of form.

## Explanation of column headings:

(1) Species: Use correct names as found in the A.O.U. Checklist.

(2) First Seen: The first migration record for the species for the reporting period.

(3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

Total: Estimated species days use (average population X no. days present) of refuge <u>during</u> the reporting period.

3-1751 Form NR-1A (Aug. 1952)

# MIGRATORY BIRDS (Other than Waterfowl)

Refuge Rachel Ca	arson N. V	<i>N</i> •		Mon	ths of	Sept.	t	oDec	2.	19_70_
(1) Species	First Seen Concentr		tration	eak cration Last Seen			(5)		(6) Total	
Common Name	Number	Date	Number	Inclu- sive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. Water and Marsh Birds: Common Loon Double-crested Cormorant Great Blue Heron Green Heron Black-crowned Night Heron	1 2 2 1 3	9/15 9/10 9/1 9/1	10 30 5 10	10/10 10/20 9/30 9/15 9/20	2 5 1 2 1	12/1 11/1 10/15 9/20 9/30				300 600 300 400 600
II. Shorebirds, Gulls and	7					f. 4		,		3.1
Terns: Killdeer Black-bellied Plover Lesser Yellowlegs Dunlin Great Black-backed Gull Herring Gull Common Tern	1 10 5 2 10 20 2	9/1 9/10 9/1 10/10 9/15 9/1	5 50 30 50 30 100	9/10 9/20 9/20 11/15 11/30 12/1 9/15	2 5 10 20 20 10	9/30 9/25 10/15 11/30 12/15 12/15 9/20				150 1,500 2,250 3,000 3,600 6,000
				10						
Data Furnished are esti	mates.		1	(over)	NR-1A	From_	Sept.	to Dec.	1970	5RF-8/69

3-1752 Form NR-2 (April 1946)

## UPLAND GAME BIRDS

(1) Species	(2) Density		You	(3) (4) Young Sex (5) (6) Produced Ratio Removals Total		(7) Remarks				
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods observed	Estimated Total	per- centage	Hunting	For Resstocking	For Research	Esti- mated number using Refuge	Pertinent information no specifically requested. List introductions here.
Ruffed Grouse	55 acres Upland Brush	27.5	Cigni Lie Zer Line Zer Line Li	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50:50	100 - 100 100 - 100 100 - 100 100 - 100 - 100	ov bree	APOT ST SALA	2 1313 - 1310W3	-
Sories on actual : bed and	fuerenced a lib fenda pr blueda fueren gurug feterles	un Wi mitted areke. noder	bedali Bun ass signat hedasi	alos suPE se avlisio bai ad b	e y t lici Lui Eron s Batan 1 l Lucul a Basa	ceta cela contr contra	unde brui pen å resta	rtey 1,5 le 1 e m m;le	No. Thouse produced to the construction of the	
53 M/O	o feelbrins sio. 2	serva t	ίο ποηι	Secret .	hesidad j	njeus navje n b kopen	15 ts	eds Ja Ldnati	Bette tall	resmones biruoy (5)
00 271	etc. Lelule	asants	adq eya	durt bil	wage of the		anga N	ijne m E mož	This ent se other mas	OTTER AND (A)
		or gain	rb bevo	met trop	etes dos	35.3	e de la p		Indicate :	(S) FEMOVALES
		e repor	ring th	efure du Linto t	ng the r	at fo	dirud Lenfg	Le tod abrit	Bolinated Inclident t	: IATOT (A)
	vered in nurse, uester.	ares of	bna a bolishe	ifaluque qui lon n	termine Tornstier		hear intla		a etrologí do encont	: EMEMBER (T)

#### INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.\*

- (1) SPECIES: Use Correct common name.
  - Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired of information but not so much as to obscure the general picture. Examples: Spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

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NR-2 Upland Came Birds. 58F-1/6

<sup>\*</sup> Only columns applicable to the period covered should be used.